CLAIMS

1. A reactant supply cartridge adapted for use with a closed liquid feed fuel cell system, the cartridge having at least first and second volumes, comprising:

a first reactant reservoir for holding a first reactant, the first reactant reservoir being configured to occupy substantially all of the first volume when filled with the first reactant;

a second reactant reservoir for holding a second reactant, the second reactant reservoir being configured to occupy substantially all of the second volume when filled with the second reactant; and

an effluent reservoir for holding effluent produced by the fuel cell system, the effluent reservoir being configured to occupy, when filled with the effluent produced by the fuel cell system, a portion of the first volume, a portion of the second volume, or a portion of the first and second volumes.

2. The reactant supply cartridge of claim 1 further comprising an electrolyte reservoir for holding an electrolyte.

3. The reactant supply cartridge of claim 1, wherein the cartridge is made of a rigid plastic.

4. The reactant supply cartridge of claim 1, wherein the first or second reactant reservoir is separated from the effluent reservoir by an interposing bladder member.

5. A reactant supply cartridge adapted for use with a liquid feed fuel cell system, the cartridge having at least first and second volumes, comprising:

a fuel mixture reservoir for holding a liquid fuel mixture, wherein the fuel mixture reservoir occupies substantially all of the first volume when filled with the liquid fuel mixture;

an oxidant mixture reservoir for holding a liquid oxidant mixture, wherein the oxidant mixture reservoir occupies substantially all of the second volume when filled with the liquid oxidant mixture;

an anodic wastestream reservoir for holding an anodic wastestream, wherein the anodic wastestream reservoir occupies substantially all of the first volume when filled with the anodic wastestream, the anodic wastestream reservoir being separated from the fuel mixture reservoir by an interposing first partitioning member;

a cathodic wastestream reservoir for holding a cathodic wastestream, wherein the cathodic wastestream occupies substantially all of the second volume when filled with the cathodic wastestream, the cathodic wastestream reservoir being separated from the oxidant mixture reservoir by an interposing second partitioning member;

a fuel mixture outlet connected to the fuel mixture reservoir, the fuel mixture outlet being adapted to flow the liquid fuel mixture, when present, out of the fuel mixture reservoir;

an oxidant mixture outlet connected to the oxidant mixture reservoir, the oxidant mixture outlet being adapted to flow the liquid oxidant mixture, when present, out of the oxidant mixture reservoir;

a cathodic wastestream inlet connected to the cathodic wastestream reservoir, the cathodic wastestream inlet being adapted to flow the cathodic wastestream, when present, into the cathodic wastestream reservoir; and

an anodic wastestream inlet connected to the anodic wastestream reservoir, the anodic wastestream inlet being adapted to flow the anodic wastestream, when present, into the anodic wastestream reservoir.

6. The reactant supply cartridge of claim 5 wherein the liquid fuel mixture is a methanol solution and the liquid oxidant mixture is a hydrogen peroxide solution.

7. A closed liquid feed fuel cell system, comprising:

a housing structure that retains one or more electrode pair assemblies, wherein each electrode pair assembly comprises an anode in operative arrangement with a cathode; and

a detachable cartridge in fluid communication with the housing structure, the detachable cartridge comprising a fuel reservoir for holding a first reactant within a first volume, an oxidant reservoir for holding a second reactant within a second volume, and an effluent reservoir for holding effluent within either (i) a portion of the first and second volumes, or (ii) a portion the second volume.

8. The closed liquid feed fuel cell system of claim 6 wherein the first reactant is a methanol solution and the second reactant is a hydrogen peroxide solution.